

Mature Tree Health, Structure, and Maintenance

Health

For a tree to reach full size and form, it must survive many natural threats and human-created challenges. Even when a tree is mature, however, it still needs care and attention. Although mature trees can be less vulnerable than younger trees to certain diseases and environmental conditions, mature trees remain at risk from other threats. Mature trees need regular care to stay sound and healthy so they do not become hazards.

Property Owners can perform basic inspections to look for signs of developing problems and can provide some of the care required. **Arborists** are tree care professionals who can diagnose more complex problems and work with property owners to develop a plan to care for mature trees. With the right information, you can recognize and avoid problems that could lead to serious damage and health concerns for mature trees. Mature trees show their health by the vigor of their leaf, bud, and twig growth.

Full, Balanced Canopy

A healthy mature tree should have a full canopy equally distributed around the tree. The leaves play an important role in making the food for the tree and keeping the tree strong and resistant to disease and pests. Trees with a sparse, thin canopy or poorly formed leaves tend to be weaker and may already be suffering from nutritional, environmental, or biological stresses.



Stressed tree: thin canopy and remove dead branches

Few or Dead Twigs or Branches

These can indicate the tree is not growing as vigorously as in past years or is being attacked by disease or insects.

Healthy Leaves

Leaves should be mostly undamaged by insects or disease and the appropriate color for the species (usually a rich green). Some leaf damage is inevitable and usually causes little or no stress. If more than 20% of the leaf surface of the tree is damaged, you should investigate the cause. Some native trees may drop their leaves in summer as an adaptation to drought. Excessive summer leaf loss in non-native trees usually indicates a problem.



Healthy leaves



Structure

Poor structure, rather than pests or disease, is the most common reason that mature trees decline in health and have to be removed. Although mature trees rarely have perfect form, trees with the following characteristics are generally strong and stable. If you have any concerns, have an experienced arborist inspect your trees.

Healthy Bark

Strong mature trunks will have bark covering the entire trunk, with few areas of damaged or missing bark. The growing part of a tree is just under the bark, and the bark protects this sensitive layer of plant tissue. Intact bark usually indicates healthy tree growth.



Trunk crack with decay

Minimal Decay

Hollows and cavities can weaken the structure of a tree, depending on the size and location of the decay. Small amounts of decay may pose little problem, but extensive decay is a cause for concern. Oozing or stained areas of the bark are generally the tree's protective response to an injury and may indicate damage or disease.

Tapering Branches

Branches should taper smoothly in size from largest diameter at the trunk to smallest diameter at the tips. Thus, each branch should be smaller in diameter than the trunk or branch to which it is attached.

Strong Branches

The tree should have no large dead or broken branches, because these may be hazardous and may provide an entry point for disease.

Well Attached Limbs

Securely attached limbs are less likely to break off and damage property or expose the tree to disease through the resultant wound. Sometimes trees do not form strong branch attachments, especially when the angle between the trunk and branch is very narrow, or where multiple branches emerge from the same point.

No Topping or Severe Pruning

Mature trees that have been topped or severely pruned may become stressed and may be more susceptible to damage and disease. Topping stresses the tree by depriving it of many of its leaves, which are critical for photosynthesis. The tree must respond by putting much of its energy into restoring its leafy canopy. Multiple large pruning cuts can also expose the tree to disease and pests.



Topped tree



Untopped tree

Sound Wood

No cracks should extend into the wood because deep cracks may indicate that the tree has internal decay or other structural problems. Expansion cracks in the bark are usually not a problem.

Healthy Roots

A tree is only as healthy as its roots because they provide water and nutrient exchange as well as stability. Inspecting the roots of a tree can be difficult, but looking at the root crown may be instructive. The root crown of a tree – where the trunk meets the roots – is particularly susceptible to decay and disease. Mushrooms, fungus, decay, and missing bark are all signs of root disease or damage.

Vertical Trunk

In general, the tree's trunk should be vertical where it emerges from the ground, and the canopy mass should be evenly distributed. A tree may have developed a leaning form over the years simply as response to limited sunlight. These trees are often stable and safe. However, mature trees that start leaning later in life – especially conifers such as pines, firs, and cedars – may have weak root systems caused by erosion of the soil around the tree roots or decay in the roots. This type of leaning tree may be unstable or hazardous. Leaning trees need to be assessed by an expert to determine if the tree is stable or if it poses a hazard.



Preventive Maintenance

A mature tree is a unique asset. You can protect the value of that asset for years to come with some basic preventative care.

Regular Inspections

Assess the health and structure of your tree once a year. Monitor your tree regularly for signs of pests or diseases rather than applying pesticides. Most mature trees with appropriate water, drainage, and sun need little or no help to fight off pests.

Stable Environment

Older trees don't adapt to change easily. Avoid grading, digging, or trenching in the drip zone (under the canopy). This includes replacing or installing lawns in the drip zone, because changing the level of irrigation or drainage in the area can increase the potential for disease or structural damage to the tree.

No Fertilizer or Herbicides

Fertilizer is generally not needed for mature trees unless the soil is lacking certain nutrients. In fact, excessive fertilizing can lead to pest problems. Use care when applying lawn herbicides or "weed and feed" formulations within the root zone. These substances can severely weaken or even kill some trees.

Mulch

Improve the environment of the roots by adding 3" to 6" of mulch such as wood chips or bark to protect the tree roots, conserve water, and provide nutrients.



Mature trees with mulch

Pruning

Make only small pruning cuts (less than 3" across) unless there is a very good reason to make a larger cut, such as removal of a damaged limb. Limit the number of large cuts at any one time. Do not attempt to prune mature trees unless you have proper training, equipment, and experience.

Removal and Replacement

If a mature tree is dead, irreparably diseased, or hazardous, it may need to be removed and potentially replaced. A mature tree may also need to be removed if it is crowding other trees or structures and the situation cannot be addressed with proper pruning. Removing a mature tree is complicated and potentially dangerous and should be undertaken only by those with proper training and experience. Ensure that any replacement tree is suitable for the site conditions and that there is enough space to accommodate the mature size of the tree.

Arborists are tree care professionals who can help with the proper selection, planting, and care of trees. We recommend choosing Arborists Certified by ISA (International Society of Arborists).

Master Gardeners are lay people who are trained to recognize many tree related issues and make general recommendations. The Master Gardeners are available through the University of California Cooperative Extension. More information about the Master Gardener Program in Placer County can be found at ceplacer.ucdavis.edu/Master_Gardener803/

Nursery Employees often have training in growing conditions and species selection for trees.

Some **Lawn Care Professionals** or **Gardeners** may also have training and experience in tree selection and care.

Where Can You
Get Help to Care
for Your Trees?

Useful Web Sites:

www.ISA-arbor.org and www.treesaregood.com
These sites are maintained by ISA and provide information about trees, tree care, and contact information for local certified arborists.

www.arborday.org/trees/righttreeandplace
The web site of the National Arbor Day Foundation provides information about tree selection and tree care.

www.ufe.calpoly.edu and selectree.calpoly.edu/
The web site of the Urban Forest Ecosystems Institute at Cal Poly San Luis Obispo has tools, such as SelecTree, to help homeowners with tree selections and identification and diagnosis of diseases and pests that attack California native tree species.

www.placertree.org
Placer Tree Partners is a citizen based organization focused on increasing public awareness and appreciation of trees in an urban forest setting.

Garden Design Books and Magazines
Many books and magazine offer useful design tips and information about proper tree selection.



Mature Trees
A Valuable Resource

Properly caring for mature trees is critical because they are valuable resources that cannot be readily replaced if they are lost to disease or damage. Most tree species take many years to reach maturity and must survive numerous threats to their health during their development. Mature trees can greatly improve the quality of life for both humans and wildlife in ways that smaller trees cannot.

- A large shade tree can add several thousand dollars to the selling price of a home, depending on the species and placement of the tree.
- The shade from a large tree can significantly reduce the energy required to cool a building, often by as much as 25 to 40%.
- Large trees help remove proportionally more ozone, carbon dioxide, and particulates from the air than smaller trees.¹
- The large, dense canopies of mature trees provide cooling shade that makes it possible to work and play outside during hot summers.
- Tree canopies help protect plastic consumer products and surface finishes such as paints and dyes as well as asphalt from degradation caused by temperature extremes and ultraviolet exposure.
- A mature tree can create a prized focal point in a landscape, providing aesthetic enjoyment for those who see it.
- Large trees (particularly evergreen trees) intercept rainfall to slow the rate at which rain water hits the ground and enters streams. This can help reduce erosion and sedimentation, recharge groundwater, and reduce local flooding from swollen streams and storm drains.
- Many bird species and some mammals require large trees for nesting; and the seeds, fruits, and flowers of mature trees are an important food source.



¹ Nowak, D.J. 1994. The effects of urban trees on air quality. Unpublished report. <http://www.fs.fed.us/nc/syracuse/TreeAirQ.htm>